Review Test Submission: Quiz 4.9

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Course	Intro to Control Systems - Fall 2020 Section Group I67
Test	Quiz 4.9
Started	9/15/20 11:33 AM
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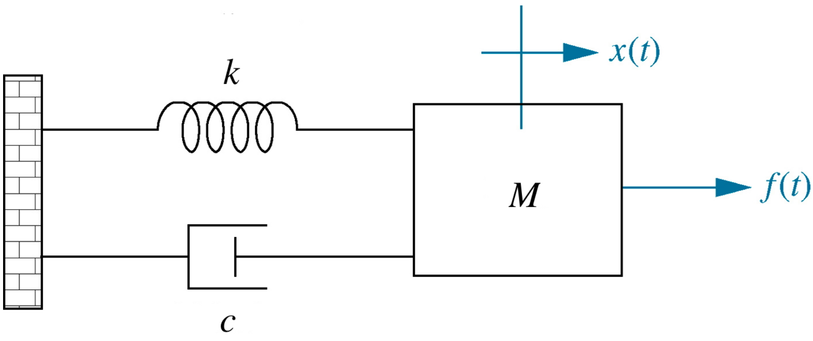
Status	Completed
Attempt Score	3 out of 3 points
Time Elapsed	0 minute
Results Displayed	Submitted Answers, Incorrectly Answered Questions

Question 1

1 out of 1 points

Consider a spring-mass-damper system with mass, damping, and spring parameters $m = 1, c = 2, k = 10$. The transfer function with output that is the position $x(t)$ of the mass, and input that is the applied force $f(t)$, is

$$G(s) = \frac{10}{s^2 + 2s + 10}.$$



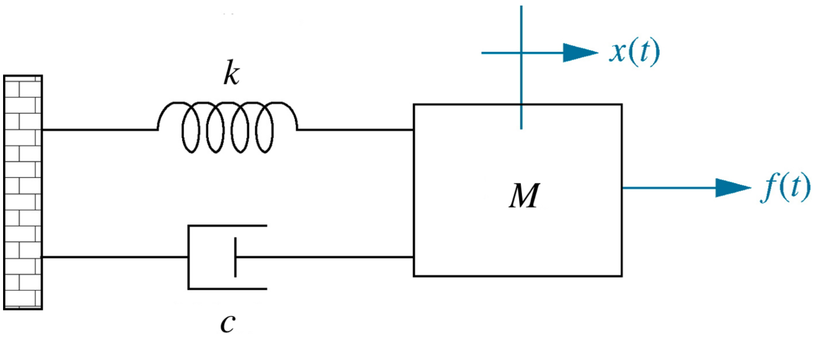
Which of the following represents the settling time of the system's step response?

Selected Answer: $T_s = 4$ sec.

Question 2

1 out of 1 points

Consider the same spring-mass-damper system with transfer function $G(s) = \frac{10}{s^2 + 2s + 10}$.



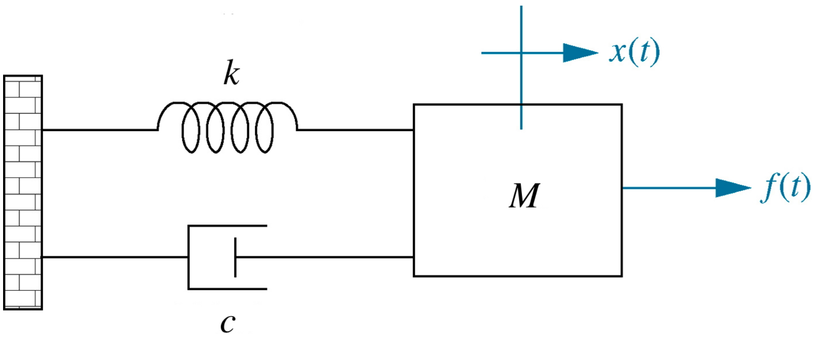
Which of the following represents the peak time?

Selected Answer: $T_p = \pi/3$ sec.

Question 3

1 out of 1 points

Consider the same spring-mass-damper system with transfer function $G(s) = \frac{10}{s^2 + 2s + 10}$.



Which of the following represents the damping ratio and natural frequency?

Selected Answer: $\zeta = 1/\sqrt{10}, \omega_n = \sqrt{10}$